

REMARKS

INTRODUCTION:

In accordance with the foregoing, claims 1, 3, 4, 10, 12, 13 and 19 have been amended. Reconsideration of the allowability of pending claims 1-21 is respectfully requested.

REJECTIONS UNDER 35 U.S.C. §102 and §103:

The Office Action, at page 2, item 2, rejected claims 1-2, 7-11, 13, 16 and 17-20 as being anticipated by Kawagishi et al., (US 4,788,485 – hereinafter Kawagishi). Applicant traverses this rejection and respectfully requests reconsideration.

The Office Action, at page 3, item 4, rejected claims 3-6, 12, 14-15 and 21 under 35 U.S.C. §103(a) as being unpatentable over Kawagishi in combination with Tuusa (US 5,038,244 – hereinafter Tuusa). The reasons for the rejection are set forth in the Office Action and therefore not repeated. Applicant traverses this rejection and respectfully requests reconsideration.

Amended independent claim 1 recites at least “...a controller to control the connection switching part so that the diode rectifier circuit and the current limiting part are connected to each other selectively in parallel and in series.”

Independent claim 9 recites at least “...connecting the diode rectifier circuit to the resistor in series so as to charge the DC capacitor when power is supplied initially...” and “connecting the diode rectifier circuit to the resistor in parallel when the detected voltage is more than a predetermined voltage.”

Amended independent claims 10 recites at least “...a connection switching part to switch a connection state of the rectifier circuit and the current limiting part so that the rectifier circuit and the current limiting part are connected to each other selectively in parallel and in series.”

Independent claim 17 recites at least “...a connection switching part to switch the rectified AC power supply to provide one or more of a current limiting protection and an over voltage protection according to a connection state of the connection switching part.”

Independent claim 18 recites at least “...current limiting the supplied power when the power is supplied initially by connecting the rectifier circuit to the resistor in series...” and “switching the rectifier circuit and the resistor to a parallel connection when the detected voltage is more than a predetermined voltage.”

The Office Action alleges Kawagishi discloses in FIG. 3, a current limiting part (resistor 34), a collection switching part (braking transistor 35) and a controller (control circuit 39). Further, although the claimed limitation “diode rectifier circuit” was not identified in the Office Action, Applicant has assumed, arguendo, that the Action intended to identify three-phase diode converter 30 as such.

Applicant notes that claims 1, 3, 4, 10, 12, 13 and 19 have been amended to enhance clarity of the claims. Applicant asserts the claim amendments do not narrow the claimed subject matter, but rather, preserve the same scope and breadth of the original claims.

Neither Kawagishi nor Tuusa, alone or in combination, suggest or disclose, at least the above-identified features of the present application. Kawagishi, in FIG. 3, illustrates the braking transistor 35 connected in parallel with snubber capacitor 36, both connected to the diode converter 30. The control circuit 39 issues a braking signal B to braking transistor 35 causing the braking transistor 35 to turn on and allowing current to flow through resistor 34. When the braking transistor 35 is switched on the resistor 35 and capacitor 36 are connected to the diode converter 30 in parallel. When braking transistor 35 is turned off, current will not flow through the emitter to the collector of braking transistor 35. However, when the braking transistor 34 is turned off, resistor 34 is not connected in series with diode converter 30. Accordingly, Kawagishi does not recite the diode rectifier circuit and the current limiting part are connected to each other selectively in parallel and in series.

Tuusa recites “A device for overvoltage protection of a rectifier bridge feeding a d.c. motor and implemented using fully gate-controlled solid-state switches without zero diodes, and for control of the d.c. motor during emergency braking” (See Tuusa, at FIG. 1, and col. 1, lines 10-14). But absent from Tuusa is any teaching that the diode rectifier circuit and the current limiting part are connected to each other selectively in parallel and in series. Therefore, Tuusa fails to cure the defect of Kawagishi.

In order to more clearly understand the references, Applicant refers to an example embodiment of the present application at paragraph [0009], which recites “the connection switching part may include a relay having a first contact point and a second contact point to allow the diode rectifier circuit and the resistor to be connected to each other, respectively, in parallel and in series.” This permits, as recited at paragraph [0029], “a number of parts and cost of production to be decreased based on an improved layout of the circuit by using a single resistor for not only inrush current protection but also for over voltage protection.”

Accordingly, Applicant respectfully submits that independent claims 1, 9, 10, 17, and 18 patentably distinguish over Kawagishi and Tuusa, and should be allowable for at least the above-mentioned reasons. Further, Applicant respectfully submits that claims 2-8, 11-16 and 19-21, which variously depend from independent claims 1, 9, 10, 17, and 18, should be allowable for at least the same reasons as claims 1, 9, 10, 17, and 18, as well as for the additional features recited therein.

CONCLUSION:

There being no further outstanding objections or rejections, it is submitted that the application is in condition for allowance. An early action to that effect is courteously solicited.


Finally, if there are any formal matters remaining after this response, the Examiner is requested to telephone the undersigned to attend to these matters.

If there are any additional fees associated with filing of this Amendment, please charge the same to our Deposit Account No. 19-3935.

Respectfully submitted,

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